

**REMARKS**

Claims 14 and 21-26 are now active in this application, of which claims 14 and 26 are independent. In view of the following Remarks, Applicants respectfully request reconsideration and timely withdrawal of the pending objections and rejections for the reasons discussed below.

***Rejections Under 35 U.S.C. §103***

Claims 14, 21-24 and 26 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U. S. Patent No. 5,852,481 issued to Hwang ("Hwang") in view of U. S. Patent No. 5,612,933 issued to Kakuda, *et al.* ("Kakuda") and further in view of Japanese Patent Publication No. 5-241173. Applicants respectfully traverse this rejection for at least the following reasons.

With respect to claims 14 and 21-25, independent claim 14 recites "wherein the gate wire and the data wire comprise a main layer and a supplemental layer, and the supplemental layer is substantially inert to an etchant used for etching the transparent layer for preventing the gate pad and the data wire from being eroded by the etchant."

As indicated in MPEP 2142, in order to establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.

It is submitted that there is no suggestion or motivation to modify or combine the references since they teach away from modifying or combining teachings of the cited references. The Examiner is respectfully requested to consider all of the following three arguments and not to ignore any of the following arguments.

First, in Fig. 1A of Hwang, the first gate electrode 250 comprises the first gate electrode layer 11, the second gate electrode layer 12 and the anodizing layer 14. The first and second gate electrodes layers 11 and 14 are completely covered by the anodizing layer 14. Since the first and second gate electrodes 11 and 14 would not be exposed to solvent or air, there is no desire to form the first gate electrode layer 11 or the second gate electrode 12 with a solvent-resistant/air permeation-resistant layer, which is disclosed in Yatabe.

Second, contrarily to the Examiner's assertion, Hwang does not disclose "the data wire having two layers (18, 19) (main layer and supplemental layer)" (Office Action, page 3). In Hwang, the layer 18 shown in Fig. 1B is a n<sup>+</sup> semiconductor layer, which is not a part of the source/drain electrode 19 (i.e., data wire). Thus, Hwang does not disclose the data wire having two layers.

The Examiner asserted that Kakuda motivates to modify the gate and data wires of Hwang to have a two-layer structure for "decreasing shorts of the TFT and obtain high speed of the data line and to prevent the generation of hillock and remaining the surface smooth" (Office Action, page 4). The Examiner further asserted that Yatabe motivates to modify the asserted combination of Hwang and Kakuda such that one of the two layers constituting the gate and data lines is formed of metal nitride having the property of solvent resist effect and air permeation resist effect.

It is submitted that the asserted motivations from Kakuda and Yatabe are *mutually exclusive to each other* and discourage the asserted combination of three references.

Specifically speaking, if the gate and data lines of Hwang are modified to comprises an Al layer and a MoCr<sub>x</sub> layer in order to decrease shorts of the TFT, to increase data transmission speed, to prevent hillocks and to keep the surface smooth as disclosed from Kakuda, the MoCr<sub>x</sub>

layer cannot be replaced with a metal nitride layer in order to resist the solvent effect and air permeation effect as disclosed from Yatabe. Thus, if the combination of Hwang and Kakuda is modified to replace the MoCrx layer with a metal nitride layer, there would be no motivation to combine Hwang and Kakuda.

Also, even if Hwang is combined with Watabe such that the gate line comprises a metal nitride layer having the property of solvent resist effect and air permeation resist effect, the metal nitride layer cannot be replaced with a MoCrx layer of Kakuda in order to decrease shorts of the TFT, increase data transmission speed, prevent hillocks and keep the surface smooth. Thus, if the combination of Hwang and Yatabe, there would be no motivation to combine Hwang and Kakuda.

Since the Examiner's asserted motivations to combine Hwang, Kakuda and Yatabe are mutually exclusive to each other, it is submitted that Kakuda and Yatabe teach away from the asserted combination of Hwang, Kakuda and Yatabe.

Third, in Yatabe, a transparent conductive layer is formed the solvent-resistant/air permeation-resistant layer, and they are patterned together to form a pixel electrode for a liquid crystal display device. Yatabe is not directed to forming a gate line or a data line. Also, the solvent-resistant/air permeation-resistant layer is formed on a resin transparent sheet in order to protect the resin transparent sheet from solvent and air.

The gate and data lines of Hwang and Kakuda are not formed of a resin transparent sheet. Thus, there is no motivation to use the solvent-resistant/air permeation-resistant layer to the gate and data lines of Hwang and Kakuda.

For these reasons, it is submitted that claim 14 is patentable over the cited references. Claims 21-24 that are dependent from claim 14 would be also patentable at least for the same reasons.

Independent claim 26 recites “wherein at least one of the gate wire and the data wire comprises a main layer and a supplemental layer, and the main layer comprises metal or a metal alloy, and the supplementary layer comprises metal nitride or metal alloy nitride”.

As previously mentioned, no suggestion for combining Hwang, Kakuda and Yatabe is found in the cited references, and, a *prima facie* case of obviousness has not been established. Thus, it is submitted that claim 26 is patentable over the cited references.

Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. § 103(a) rejection of claims 14, 21-24 and 26.

Claim 25 stands rejected under 35 U.S.C. §103(a) as being obvious over Hwang, in view of Kakuda, further in view of Yatabe and further in view of U. S. Patent No. 4,141,022 to Sigg, *et al.* (“Sigg”). This rejection is respectfully traversed at least for the following reasons.

Claim 25 is dependent from claim 14. As previously mentioned, claim 14 is believed to be patentable over the asserted combination of Hwang, Kakuda and Yatabe because, for example, there is no motivation to combine them as Kakuda and Yatabe teach away from the asserted combination.

Sigg discloses providing an etch resistant metal layer (e.g., chromium) over refractory metal layers (e.g., chromium). However, Sigg does not provide any motivation or suggestion to combine the teachings of Hwang, Kakuda and Yatabe. Thus, it is submitted that claim 14 is

patentable over Hwang, Kakuda, Yatabe and Sigg. Claim 25 is dependent from 14 and would be also patentable at least for the same reason.

Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. §103(a) rejection of claim 25.


**CONCLUSION**

Applicants believe that a full and complete response has been made to the pending Office Action and respectfully submit that all of the stated grounds for rejection have been overcome or rendered moot. Accordingly, Applicants respectfully submit that all pending claims are allowable and that the application is in condition for allowance.

Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact the Applicants' undersigned representative at the number below to expedite prosecution.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,

  
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